

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 5 1. A walking beam assembly, comprising:
- a pair of axles in parallel spaced relation, at least one of the pair of axles being a drop axle having end portions and an intermediate portion that extends between the end portions, the intermediate portion dropping down and
- 10 having a secondary axis which is offset from and substantially parallel to a primary axis provided by the end portions; and
- a pair of walking beams extending in parallel spaced relation between the pair of axles, each walking beam having
- 15 opposed ends, a central transverse pivot axis intermediate the opposed ends, and a longitudinal pivot axis, the opposed ends of each walking beam being secured via connectors on top of the intermediate portion of the at least one drop axle adjacent one of the end portions, each of the connectors
- 20 allowing limited pivotal movement about the longitudinal pivot axis of the walking beam.

2. A walking beam assembly, comprising:

5 a pair of drop axles in parallel spaced relation, each of the drop axles having end portions and an intermediate portion that extends between the end portions, the intermediate portion dropping down and having a secondary axis which is offset from and substantially parallel to a primary axis provided by the end portions; and

10 a pair of walking beams extending in parallel spaced relation between the pair of drop axles, each walking beam having opposed ends, a central transverse pivot axis intermediate the opposed ends, and a longitudinal pivot axis, the opposed ends of each walking beam being secured via
15 connectors on top of the intermediate portion of the drop axles adjacent one of the end portions, each of the connectors allowing limited pivotal movement about the longitudinal pivot axis of the walking beam.

20 3. The walking beam assembly as defined in Claim 2, further including means to secure the walking beams in a longitudinal orientation to a frame of a vehicle for pivotal movement about the central transverse pivot axis.

25 4. The walking beam assembly as defined in Claim 2, wherein mounting plates are positioned onto the top of the intermediate portion of each drop axle, each of the mounting plates having bolt receiving apertures, each of the connectors being secured in position by bolts extending
30 through the apertures and secured by nuts.

5. The walking beam assembly as defined in Claim 2, wherein each of the connectors is comprised of a cylindrical pin surrounded by a bushing, the cylindrical pin rotating

relative to the bushing to accommodate movement.

6. The walking beam assembly as defined in Claim 2, wherein each of the connectors is comprised of at least one resilient
5 flexible element which deforms to accommodate movement.

7. The walking beam assembly as defined in Claim 6, wherein each of the connectors is comprised of an upper resilient element and a lower resilient element with one of the opposed
10 ends of one of the walking beams sandwiched in between.

8. The walking beam assembly as defined in Claim 3, wherein the means to secure the walking beams in a longitudinal orientation to a vehicle frame, includes a pair of suspension
15 arms, each suspension arm having a pivotal connection at one end adapted for pivotally securing the suspension arm to the vehicle frame, a support bracket for pivotally supporting the walking beams for pivotal movement about the central transverse pivot axis, and shock absorbers adapted to be
20 disposed between the suspension arm and the vehicle frame.

9. The walking beam assembly as defined in Claim 1, wherein each of the pair of walking beams is a drop walking beam with an intermediate portion that drops down from the end
25 portions.

10. The walking beam assembly as defined in Claim 9, wherein each of the pair of walking beams is "W" shaped.

30 11. The walking beam assembly as defined in Claim 8, wherein hydraulic shock absorbers are used to dampen movement of each of the suspension arms.

12. The walking beam assembly as defined in Claim 2, wherein hydraulic shock absorbers are used to dampen movement of each of the walking beams.

5 13. The walking beam assembly as defined in Claim 2, wherein at least one levelling valve is provided to allow air to be added or removed from one of driver's side or passenger side air bags, whereby the vehicle frame is levelled.

10 14. The walking beam assembly as defined in Claim 5, wherein the cylindrical pin has a threaded end and a nut is threaded onto the threaded end of the shaft, thereby facilitating the use of washers as shims.

11. A walking beam assembly, comprising:

5 a first drop axle and a second drop axle, each of the first drop axle and the second drop axle having a first end portion, a second end portion, and an intermediate portion that extends between the first end portion and the second end portion, the first end portion and the second end portion supporting wheel mountings which are adapted to receive wheels, the intermediate portion dropping down and having a
10 secondary axis which is offset from and substantially parallel to a primary axis provided by the first end portion and the second end portion;

a shaped first walking beam and a second walking beam arranged in parallel spaced relation, each walking beam being
15 "W" shaped and having a first end, a second end, a central transverse pivot axis intermediate the first end and the second end and a longitudinal pivot axis;

a first end of the first walking beam being secured via a connector on top of the intermediate portion of the first
20 drop axle adjacent the first end portion, a second end of the first walking beam being secured via a connector on top of the intermediate portion of the second drop axle adjacent to the first end portion;

a first end of the second walking beam being secured via a connector on top of the intermediate portion of the first
25 drop axle adjacent the second end portion, a second end of the second walking beam being secured via a connector on top of the intermediate portion of the second drop axle adjacent to the second end portion;

30 mounting plates positioned onto the top of the intermediate portion of each drop axle, each of the mounting plates having bolt receiving apertures, each of the connectors being secured in position by bolts extending through the apertures and secured by nuts;

each of the connectors allowing limited pivotal movement about the longitudinal pivot axis of one of the first walking beam and the second walking beam; and

5 means to secure the walking beams in a longitudinal orientation to a vehicle frame for pivotal movement about the central transverse pivot axis, including a pair of suspension arms, each suspension arm having a pivotal connection at one end adapted for pivotally securing the suspension arm to the vehicle frame, a support bracket for pivotally supporting the
10 walking beams for pivotal movement about the central transverse pivot axis, and shock absorbers adapted to be disposed between the suspension arm and the vehicle frame.

16. The walking beam assembly as defined in Claim 11,
15 wherein each of the connectors is comprised of a cylindrical pin surrounded by a bushing, the cylindrical pin rotating relative to the bushing to accommodate movement.

17. The walking beam assembly as defined in Claim 11,
20 wherein each of the connectors is comprised of an upper resilient flexible element and a lower resilient flexible element with one of the opposed ends of one of the walking beams sandwiched in between, the upper resilient flexible element and the lower resilient flexible element deforming to
25 accommodate movement.